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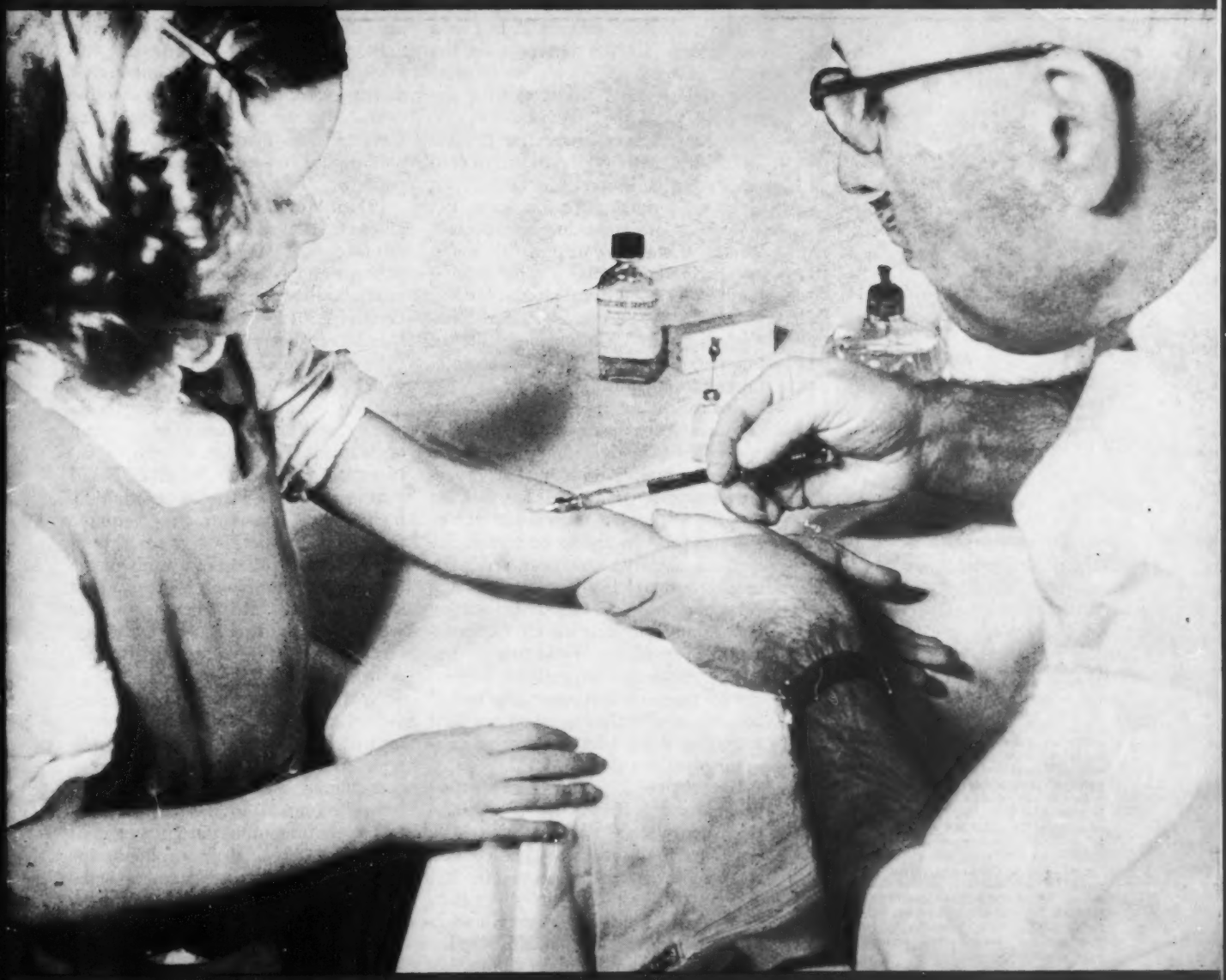
Bulletin

NATIONAL TUBERCULOSIS ASSOCIATION



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NATIONAL
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ASSOCIATION

Bulletin

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Tuberculin Testing and Total Case Finding

The use of the tuberculin test as a case-finding activity has become the vogue among tuberculosis associations. The reasons are varied: the decreasing yield from community-wide chest X-ray surveys, reduction in state mobile unit activity, the desire to continue a "tangible" program activity, an effort to reduce radiation exposure, increasing attention to the infected. Whatever the reason, probably every association has a valid one for gaining some experience in tuberculin testing. However, it is desirable for associations to understand the value of tuberculin testing in relation to total tuberculosis control.

Regardless of the extent of the program, certain cardinal principles apply: Start slowly gaining experience and overcoming problems in procedure before engaging in large complex programs. Involve representatives of the group or groups to be tested, the medical society, and health department personnel in planning from the very beginning. Establish in writing the responsibilities of each group involved regarding organization, promotion, testing, interpretation, follow-up of reactors and contacts, record keeping, and evaluation. And consider testing as it fits into the over-all program of tuberculosis control.

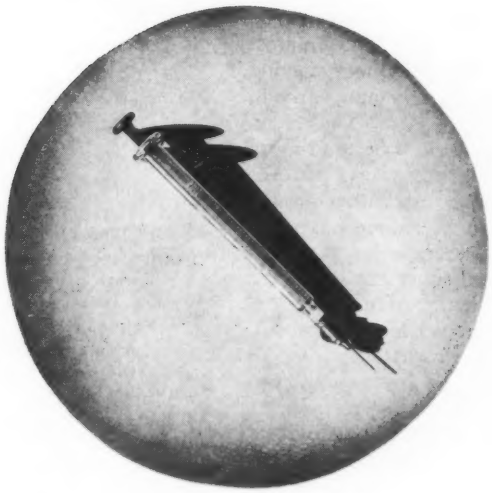
Experience indicates that testing programs are frequently costly and time consuming, and produce little new active tuberculosis contrasted with more selective programs. Yet once established, they are difficult to discontinue. For these reasons, a number of state and local health departments have opposed tuberculin testing on the basis that it detracts in terms of money, personnel, and time from tuberculosis control activities that are deserving of greater priority.

Priority activities include the follow-up of active cases, contacts of active cases, suspects, and inactive cases. Also deserving of priority are services, both medical and social, to nonhospitalized active cases and ex-patients.

Priority attention should also be given to the screening of physician referrals, hospital admissions (both in-patients and outpatients), low-income groups, older-age groups, inmates of penal institutions, and perhaps food handlers and certain industrial groups, depending upon local experiences with these groups.

Every association is limited by money, staff, and time in what it can accomplish. Therefore, it is important to establish program priorities based on the realities of the local situation, including facilities for a complete follow-up of reactors and contacts of reactors. Only a thorough study of the tuberculosis problem in each area served by an association can point to where it must direct its efforts to do the greatest good with its limited resources.

No association should become involved to the point where it is spending a considerable amount of its annual budget for testing programs on a continuing basis. An association may be called upon to demonstrate the value of tuberculin testing as a part of total tuberculosis control, but the basic objective is to encourage the groups involved to assume responsibility if the demonstration proves the program to be of value.—**Raymond M. Taylor,** *associate in charge of case finding, Program Development Division, National Tuberculosis Association*



PITFALLS in TUBERCULIN TESTING

By Duane O. Crummett, Ph.D.

THE tuberculin test is one of the most potent tools available today for the eradication of tuberculosis. But like all tools, tuberculin testing must be used properly for maximum effectiveness.

Properly used, the tuberculin test has the following values: (1) it pinpoints those who are infected, (2) it provides unique opportunities for health education, (3) it detects tuberculosis at the earliest stages, (4) it may reveal the source of infection and thus uncover previously undiagnosed active disease, (5) it is a valuable measure of the relative effectiveness of the community's tuberculosis control program, (6) it reassures the nonreactor that he does not harbor TB germs, (7) it alerts the reactor to the need for good health practices and for regular medical and X-ray examinations, (8) it reduces the amount of X-raying needed for TB screening, (9) it is an increasingly valuable tool in differential diagnosis.

In large tuberculin-testing programs, other indirect benefits may result, such as improved interagency relationships and an increased community awareness of, and mobilization for, better health.

To achieve both these specific and broader objectives, the Tuberculosis and Health Association of Los Angeles County has worked cooperatively with school, industrial, governmental, community, and official groups during the past five years in expanded programs of tuberculin testing in which nearly 400,000 Mantoux tests have been given.

From this broad experience, we have learned that weakness in any of the following areas can be a major pitfall in conducting a successful program.

Purposes and Objectives

The purpose of the tuberculin-testing program must be clearly defined, and the objectives given a sequence of priority. The priority interests of the various participating groups must also be considered. For example, in a school tuberculin-testing program, the teachers' chief interest may be in health education, the administrators' in prevention and detection, the students' in personal health, the medical personnel's in case finding and treatment, the health department's in follow-up and research information. All these diverse concerns must be given appropriate attention and molded into the total program.

The purposes and objectives of the program must also be flexible and geared to the distinctive characteristics of the local situation and the target group.

Organization

Through all the stages of preparation, education, testing, follow-up, and evaluation, good organization is imperative. Following are some of the steps essential to achieve this:

1. The program should be cospon-

sored. Since many groups have legitimate interests in tuberculin testing—schools, health departments, private physicians, hospitals, industry, parents – their cooperation and interest should be secured and their varying roles be defined clearly and early in the project.

2. The scope of the program should be geared realistically to available or potential resources. An initial project of limited scope well done has more ultimate worth than a large undertaking conducted superficially.

3. Planning should be a shared experience and should include consultation with or representation from all participating groups.

4. Procedures should be formulated in detail and pretested if possible.

5. Both on a local and a project-wide basis, individual persons or groups must be assigned specific responsibility and authority for coordinating the multitudinous details involved.

Participation

In a voluntary program, the rate of infection or actual disease is likely to be much higher among those who are unwilling to participate. Therefore, every effort should be made to secure full participation. The following steps can help:

1. Establish group goals, so that everyone will feel a responsibility for working with others to attain them.

2. Organize the program in such a way that it will be both convenient and pleasant to participate.

3. Promote the program enthusiastically, so that a spontaneous desire to join in will develop.

4. Use effective health education, so that everyone understands the importance and the benefits of being tested.

5. Alleviate fear of the test, not only in children but in adults.

6. Secure the cooperation and understanding of private physicians, so that they can reassure their patients about the values of the test.

7. Be persistent in sending out reminders and in following up on nonparticipants.

The General Federation of Women's Clubs adopted the following resolution at its meeting in Los Angeles on June 4, 1959:

WHEREAS, the General Federation of Women's Clubs has a vital and continuing interest in the health problems confronting our country; and

WHEREAS, the major national voluntary health agencies, with the support and active participation of the members of the General Federation of Women's Clubs, have developed outstanding and effective programs of research, professional and lay education, and community services to meet these problems; and

WHEREAS, these agencies have a rich heritage in America and have developed within the traditional framework of services to the community through volunteer citizen action; therefore

RESOLVED, that the General Federation of Women's Clubs urges its members to continue to give their full support to the major national voluntary health agencies which, in their judgment, are designed to achieve most rapidly and effectively the major advances in scientific research, medical knowledge and patient aid that will result in the protection of the health and lives of all the American people.

Every effort should also be made to include "captive" groups in tuberculin-testing programs and to incorporate tuberculin testing into regular medical and organizational procedures. Surveys should include both children and adults.

Using the patch test to gain wider participation is not justified: the type of test used will have little effect on participation if the rest of the program is well executed.

Health Education

Health education should get primary emphasis in any testing program, and should be given top priority in all school projects. Stress should be placed on the following:

1. Have definite objectives to guide the over-all educational plan.

2. Provide suitable materials, based on the specific needs of each segment of the test population. Use audio-visual aids as much as possible.

3. Organize effectively to make the best use of time, opportunities, resources, and procedures.

4. Plan well in advance to allow sufficient time for effective learning and understanding. Avoid one-shot approaches and handouts.

5. Use all opportunities to teach—before the test, during testing, and after the test—participants, their families, and the community.

6. Continually evaluate the effectiveness of materials and methods.

Testing Procedures

Although the Mantoux test, which is intradermal, is the technique of choice, there are pitfalls connected with it, too, both in giving the test and in reading and interpreting the results. For uniform results, it is best to use as few physicians as possible, and only physicians experienced in giving the test.

Great care must be taken to avoid any hepatitis infection. If possible, it is best to use individual needles for each child, but if flaming is done, it should be away from the view of children, to prevent fear. Arms should be cleansed immediately preceding the giving of the test, and needles should be kept sharp. In large programs, a single batch of tuberculin

Dr. Crummett is assistant director of Research and Development for the Tuberculosis and Health Association of Los Angeles County. Earlier, as a member of the association's field staff, he was project coordinator for its three-year school tuberculin-testing project in 75 schools. He has recently completed the final report of a similar project among adults. Dr. Crummett has taught at Los Angeles City College and the University of California at Los Angeles and has conducted research for U.S. government agencies and at the Universities of Washington and California. His article was solicited by the Governing Council of the National Conference of Tuberculosis Workers.

should be used if possible. The test should not be administered in proximity to vaccination programs.

When the test is read, between 48 and 72 hours after administration, the arm should be carefully examined and all indurations accurately measured and recorded exactly in millimeters. Final readings of all reactions should be cross-checked periodically. If the reaction is severe, staff must be prepared to explain to the person that this is not necessarily serious. If the individual has been vaccinated with BCG prior to the tuberculin test, this should be noted on the record.

Local conditions that may cause a large number of indeterminate or nonspecific reactions must be considered in interpreting results. For example, nonspecific reactions may be due to atypical acid-fast bacilli. In such situations, it may be wise to raise the criterion of size of induration for a reaction. Reliable data on the local situation are needed. It is better, however, to err in favor of a few false positive interpretations than of many false negative readings. Where there is doubt as to the interpretation, the test should be repeated or a chest X-ray should be given.

Records and Reports

Record keeping and reporting are frequently neglected in tuberculin testing. Common shortcomings are (1) poor, incomplete, or inaccurate recording of results, (2) inconvenient or poorly formulated record and report forms, (3) omission of data analysis or failure to procure all information, (4) incomplete notation of procedures and findings, (5) insufficient or inadequate interpretation of findings, (6) delay in reporting findings, and (7) lack of appreciation of the importance of this phase of the program, with resultant neglect in providing adequate funds and personnel to perform it properly.

The amount of time, money, and effort expended on tuberculin testing in the past without adequate presentation of results is downright amazing. The reverse situation—becoming swamped in a maze of extraneous detail and complex tabulation – can also become a pitfall. Balance is as important here as in any other phase of the program.

Health education should get top priority in school tuberculin-testing programs.

Evaluation

Inadequate evaluation is one of the most prevalent pitfalls in tuberculin testing. This can be minimized considerably by:

1. A clear statement of purposes and objectives in terms that can be measured or estimated.
2. Establishing procedures to make evaluation a continuous process.
3. Providing proper procedures for accurate and valid assessment.
4. Participation in evaluation by all sponsors of the program.

Follow-up

Adequate follow-up is vital in every tuberculin-testing program. It should include:

1. A clear and full interpretation to the participant of the test results.
2. A chest X-ray for every reactor.
3. An X-ray and a medical examination for everyone with a "suspect" film.
4. Intensive and complete follow-up of all contacts of known recent converters, of children under seven with positive reactions, of first reactors among older children with large reactions (over 20 mm. induration), and of all persons detected with active tuberculosis.

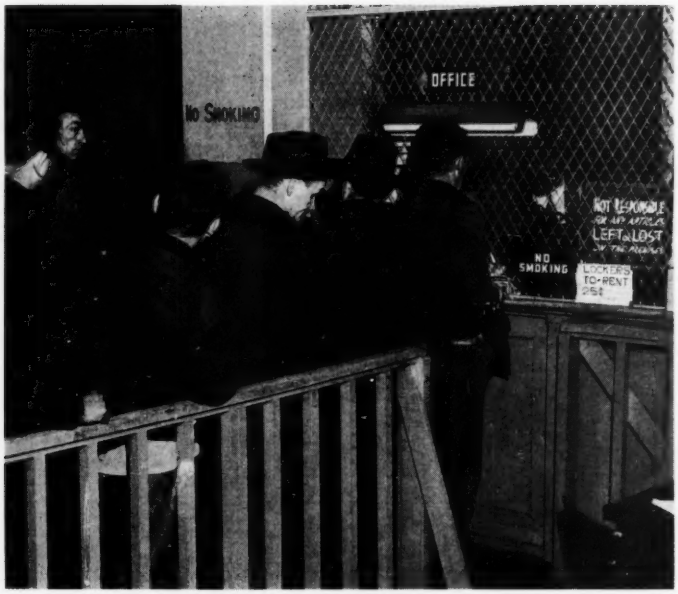
Conclusion

The largest reservoir of human tubercle bacilli today is within the bodies of infected persons. The challenge to public health is to eradicate this vast potential source of disease or render it innocuous. The first step is to identify each infected individual. The next is to find an effective therapeutic or prophylactic agent to eradicate the bacilli or make them permanently harmless. The third and most difficult step will be to develop individual and community responsibility for decisive action. Ultimate victory demands a united effort in marshalling all available resources – educational, medical, and community.

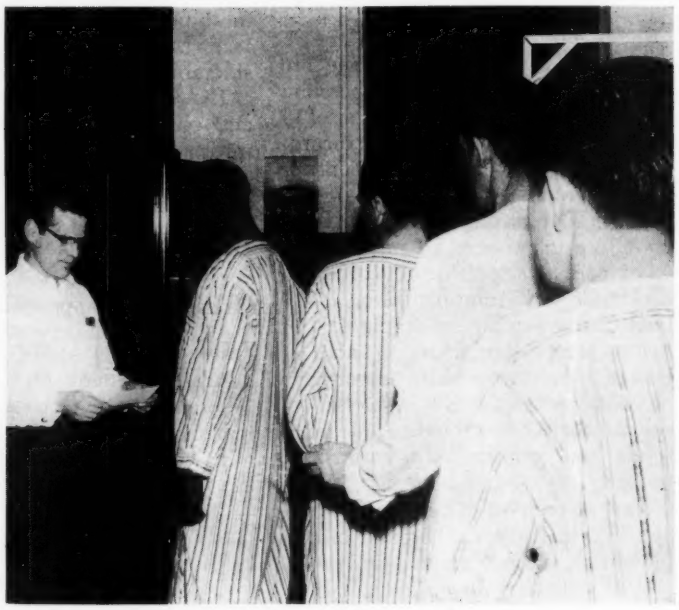
The Tuberculosis and Health Association of Los Angeles County has set as a goal the elimination of tuberculosis as a public health hazard within this county by 1970. Tuberculin testing will play a significant role in attaining this goal. A similar crusade nationwide could bring the eradication of tuberculosis well within striking distance.

THE BOSTON PROGRAM

By Mary B. Kelly



CASE FINDING IN SKID ROW



THE MILWAUKEE PROGRAM

By Lyman E. Davis

LAST year 250 men came nightly to a red brick building on the outskirts of Boston's skid row. At the Rufus Dawes Hotel, they received more than just a place to sleep. For the transient, homeless, and alcoholic men, the "Dawes" is their only home—a place where they can have a bed and a shower, find out about job opportunities, and talk to workers who are interested in their physical and mental health.

An affiliate of the Boston Industrial Home, the Rufus Dawes is supported by many church groups interested in missionary work. The Boston Department of Public Welfare and other Boston social agencies dealing with transient, alcoholic men also use this resource.

Realizing the importance of case finding among this group, in 1954 the Boston Tuberculosis Association initiated a case-finding program to be held twice a year. The number of cases found was so impressive that the association decided to install permanent X-ray equipment for a 14" x 17" film, and a Monday-night weekly clinic was started on Oct. 6, 1958.

X-raying at the Monday clinic starts at 6:30 P.M., when the men begin to drift in, and by 10:30 anywhere from 50 to 300 men will have registered and paid 50 cents for a bed and shower. Many are regular patrons, while others are "just passing through" Boston for one night. During the summertime, there is a slack-off in attendance, because many of the group sleep outside.

Because these men have no other address than the Rufus Dawes, it is difficult to reach them if follow-up is needed. X-rays taken on Monday night are read within 24 to 36 hours, and a telephone call or visit is made to the home to notify patients who need follow-up. A caseworker must use individual contact with this group instead of the routine notification.

The casework approach to such follow-up cases often necessitates frequent visits to the home to locate the patient, and sometimes checks are made with the Boston Welfare Department, the local jails, and institutions which sponsor a program for alcoholics, such as the Long Island Hospital and the Bridgewater State Farm.

During the 10-month period since the weekly case-finding program was started, 728 X-rays have been taken. Fifteen cases of active tuberculosis have been found and hospitalized. This figure represents 20 cases per 1,000 X-rayed, compared with a nation-wide community rate of .7 per 1,000. Reports have been made to the health department on 57 cases showing suspicious tuberculosis, heart condition, and other suspicious pathology. The average age of the men to be followed up was 50.

The follow-up of the average case from the time of X-raying to hospital admission takes from three days to a week. Such a case was Mr. K, who was X-rayed on a Friday. His X-ray showed signs of probable tuberculosis, and on the following Friday he was contacted at the Rufus Dawes. The

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CASE FINDING among the hard to reach —the populations of the skid rows of our nation's large cities, one of the last reservoirs of infection—has been effectively tackled in Milwaukee. Under the leadership of its former medical director, A. A. Pleyte, M.D., the Wisconsin Anti-Tuberculosis Association approached the Milwaukee Rescue Mission in 1956 and, finding the administration receptive, arranged talks with several other interested groups—the Milwaukee Health Department, the Tuberculosis Control Center, and the General Electric Company X-ray Department (which is located in Milwaukee).

Mobile unit surveys were conducted at the Mission, which revealed that one out of each 100 men had active tuberculosis, requiring hospitalization, and that one out of ten were in need of follow-up studies for one ailment or another.

Milwaukee is unique in that virtually all its skid row men pass through the doors of this local religious and welfare institution at some time or other. Currently records are kept on 13,600 men, with an average of 300 men handled per night.

Previously, chest X-ray equipment had been set up in the city jail for routine screening of men committed, but that, of course, did not reach men who lived without getting into trouble with the law.

A cooperative project was arranged between the General Electric X-ray Department, the Wisconsin Anti-Tuberculosis Association, the Milwaukee Health Department, and the Milwaukee Rescue Mission. A 4" x 5" stereo photofluoroscopic unit was set up at the Mission, and all men were screened when they received their baths and fumigation on entering. Films were developed the same night and taken to the WATA (now to the Tuberculosis Control Center of the Milwaukee Health Department) the first thing the next morning for reading.

All suspect cases are reported back to the Mission by phone, and the men are gathered together and taken by car to the Tuberculosis Control Center the same day for additional studies and arrangements for any treatment needed. Follow-up work is completed in 80 per cent of all cases. The remaining 20 per cent are presumed to have left town or at least cannot be located.

As 75 per cent of all homeless men in Milwaukee are local residents, their hospital treatment is provided for under Wisconsin's Free Care Law. State-at-large provisions are applied to nonresidents, so that no one is denied the care he needs. It is possible to obtain a court commitment to place a man under treatment, but this device is rarely used.

In the first 15 months of the program, 4,033 men were X-rayed, of whom 368 needed follow-up studies. Of these, 290 have received follow-up and 17 have been hospitalized.

The X-ray procedure is an automatic part of the admission procedure

social worker told him about the diagnostic clinic at the Boston Health Department and made an appointment to meet him at the clinic the next day. After a doctor's examination, confirming the diagnosis of tuberculosis, the patient accepted hospitalization the same day. Mr. K stated that his X-ray at the Rufus Dawes was also his first X-ray.

However, not all cases are handled so smoothly or so quickly. Although some of the men become "old friends," efforts to have them accept treatment, even on an outpatient basis, remain unsuccessful.

Counted among the unsuccessful cases is the story of Mr. S. Since November, 1958, the social worker at the Boston Tuberculosis Association has been working with Mr. S, a follow-up case from the Rufus Dawes. Known to have a bad alcoholic problem, Mr. S's X-ray showed signs of an advanced case of tuberculosis. A worker with a salvage company, he was a regular Rufus Dawes resident and could be reached easily. Attempts by the social worker to make an appointment for him at the clinic were futile.

Finally, with Mr. S's permission, his employer was notified of his condition and he received time off from work to attend the clinic. Instead of meeting the social worker, who went to pick him up at his job, Mr. S spent the day drinking. In this situation, the caseworker is dealing with a patient having the double handicap of tuberculosis and alcoholism. Repeated efforts are still being made to get the patient to accept treatment.

Although Mr. S has not yet accepted treatment, he is aware of the services made available to him by the Boston Tuberculosis Association and the health department. In this way, the case-finding clinics also provide opportunities for general health education.

All the men receive a card if their X-ray report is negative. These "health" cards have been instrumental in job placement and also serve as a psychological reassurance to many of the men, who feel that everything has gone wrong with their life, including their health.

The results of the case-finding program at the Rufus Dawes has proved to the association the importance of continuing a regular X-ray program with this group of transient, homeless men.

Mrs. Kelly has been a social worker on the staff of the Boston Tuberculosis Association since 1948. She formerly served as an assistant supervisor of Catholic Charities of the Archdiocese of New York. Mrs. Kelly is a graduate of Regis College, Weston, Mass., and the Simmons School of Social Work.

at the Mission. No permission is asked, nor is any force needed. An occasional man who seems reluctant is talked to kindly and his cooperation is secured.

No reporting is made to cases which turn out negative, but those with suspicious findings are sought out and the follow-up work commenced immediately.

The general attitude of these men toward this program has been one of sincere appreciation that something is being done for their welfare. Their cooperation with follow-up has been excellent. Where hospitalization has been indicated, the men have accepted it more and more willingly as the program has progressed.

Some men who have gone through treatment have come back in a few months looking and feeling much better and have spread the word around among the others about the excellent and kindly treatment they received. In one case, the hospital even went to work, while it had the man under care, to treat acid burns on his face received some years before in a gang war. This, too, is helping tremendously in his rehabilitation.

As a demonstration, the WATA provided film and reading services during the first year of the program. These services were taken over by the Milwaukee Health Department on January 1, 1959.

It is hoped that this program will serve as a pilot project which can be applied in other cities. Already several cities have made inquiries.

The first problem involved is to locate the equipment in a place where these men naturally congregate and where some supervision and control can be exercised. The second is funds for equipment and operation.

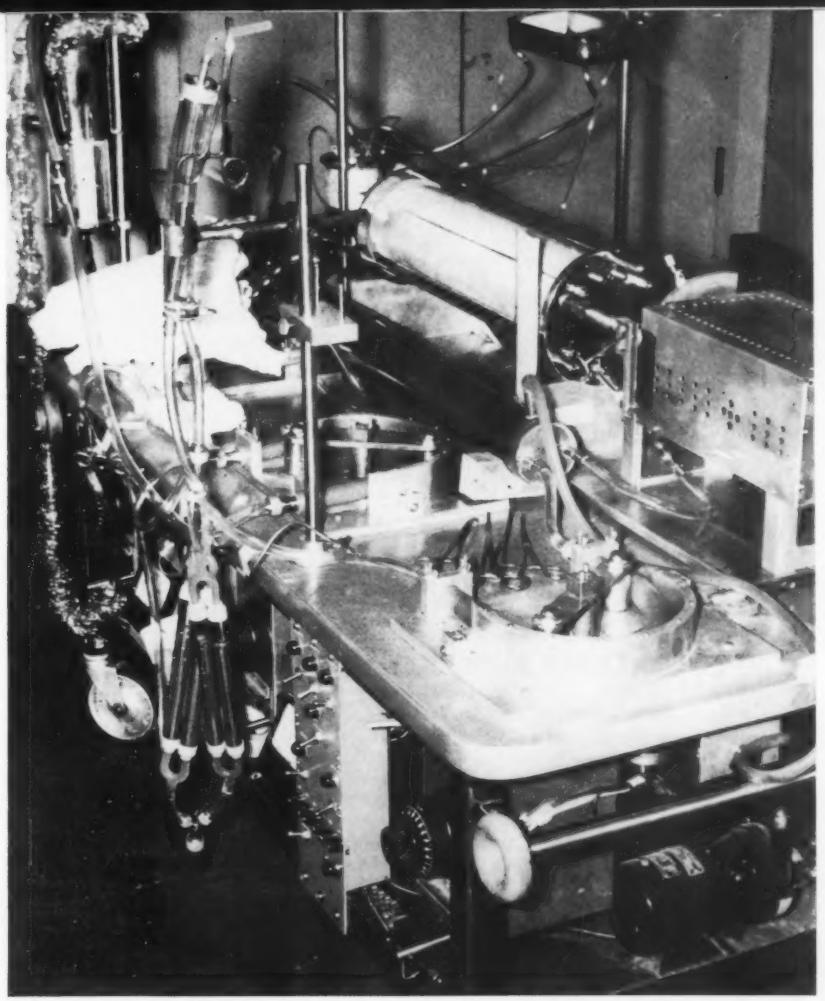
In Milwaukee, this is done cooperatively, with the Milwaukee Rescue Mission furnishing space, operating personnel, and miscellaneous operating costs; the city health department supplying film, supervision, follow-up studies, and arrangements for treatment. Even if the need for this service should drop off, the two groups plan to continue it indefinitely for those who do need it. However, so far, any drop-off has been slight, since all men are rechecked every six months; there are always transients; and the large number of alcoholics among the men considerably increases the chance that some of them will develop active tuberculosis.

Mr. Davis is superintendent of the Milwaukee Rescue Mission, and has been engaged in social work for the past 27 years. He is a member and trustee of the International Union of Gospel Missions; director of the National Association of Christians in Social Work; and a member of the National Council on Alcoholism, the National Rehabilitation Association, the Wisconsin Welfare Council.

Letting the Machine Do It

By taking the heart out of circulation, the heart-lung machine has led to major advances in surgery

By William E. Bloomer, M.D.



This heart-lung machine consists of a cylinder containing discs that rotate in such a way as to film blood on their surfaces and expose the blood to high oxygen tension within the cylinder. The blood is then pumped through a warming unit and back into the body via filters. The machine is a modification of the Kay-Cross pump-oxygenator as developed by W. W. L. Glenn, M.D., at Yale University School of Medicine.

HUNDREDS of people this year will successfully undergo heart operations that temporarily take that organ out of circulation. By relieving the heart for a short time of its vital role in maintaining circulation to the rest of the body, it is often possible to completely correct defects within the heart—defects that otherwise would undoubtedly not only place a great limitation upon the patient's physical activity and productivity, but which would often appreciably shorten his life.

This major advance in surgery has, of course, been made possible by substituting an artificial heart and lung (the so-called heart-lung machine, or mechanical pump-oxygenator), or by cooling the patient to the point where he can survive for a short period of time without circulation, or by a combination of both. Of these methods, the heart-lung machine seems to give the most promise for the more complicated repairs, as it allows a longer period of exclusion than does the cooling technique ("hypothermia").

The first successful operation using a mechanical pump-oxygenator was reported by Dr. John Gibbon, Jr., of Philadelphia, in 1953, after years of research and development of his fine machine. A year later, Drs. Clarence Crafoord and Ake Senning, of Stockholm, Sweden, reported a similar success with a somewhat different type of machine. In the same year, Dr. Forest D. Dodrill, of Detroit, reported success with four patients. Meanwhile, Drs. C. Walton Lillehei and Richard A. DeWall and colleagues in Minneapolis were also making major contributions in the clinical use of the machine.

By 1955, Dr. John W. Kirklin and colleagues reported their experience with the first eight cases to undergo such surgery at the Mayo Clinic. Since then, several centers have accumulated experience with hundreds of patients, and with the improvements in technique gained from this increasingly large experience, the inherent risk associated with the use of the mechanical pump-oxygenator has become quite acceptable and comparable to other operations of similar magnitude.

Many types of pump-oxygenators have been developed, but certain principles are common to most. The blood returning to the body by way of the great veins (the venae cavae) is removed via plastic tubes, or "cannulae," inserted into these veins. Usually this

removal of blood is by gravity siphonage into a venus reservoir. Blood is then "purified," i.e., freed of excessive carbon dioxide, and is oxygenated by bubbling pure oxygen through it or by letting the blood flow in a thin film through a chamber containing oxygen in high concentration. This filming of blood may occur on rotating discs or on stationary screens or between two layers of plastic membrane that are impermeable to blood but permeable to oxygen and carbon dioxide. The blood is usually propelled by being squeezed through plastic or rubber tubing by mechanical pressure applied to the outside of the tubing, for example, by mechanical rollers. The blood is then directed back into one of the main arteries at a pressure comparable to a normal arterial pressure and at flow rates adequate to maintain normal function of vital organs.

Although these basic principles upon which the working of the pump is based are simple, there have been countless pitfalls in its perfection and practical application.

In developing the various machines, problems have arisen with regard to (1) prevention of untoward effects on the formed elements of the blood (the red cells, white cells, and platelets); (2) prevention of foaming of blood; (3) prevention of the formation of fibrinous emboli; (4) prevention of air embolization; (5) regulation of blood flow to optimum rates; (6) control of heat loss from the blood while it is in the circuit outside the body.

This list represents only a sample of some of the problems that have had to be solved in the development of each type of pump-oxygenator. Still other types of problems have arisen in the practical use of these machines. Blood procurement has been one of these. Fortunately blood is provided by the Red Cross, but it is still necessary to do detailed cross-matching of many donors ahead of time, to draw blood a matter of hours before each operation, and to use heparin as an anticoagulant rather than the usual citrate solution.

The assembly and sterilization of some pumps has been a tedious and difficult job, requiring long hours of painstaking attention to detail. As knowledge has been gained, pumps have tended to become simpler, more easily assembled and operated, and made of materials that could be more conveniently sterilized by steam autoclave or by ethylene oxide gas.

From a practical point of view, the assembly and the running of the pump has required trained full-time personnel. Also, in addition to the usual paraphernalia for a major operation, it has been advisable in many cases to monitor not only cardiac activity with the electrocardiograph, but also cerebral activity with the electroencephalograph. This has usually required additional personnel. All of this has tended to increase the magnitude of the procedure.

With the successful solution of the multiple problems of developing and using pump-oxygenators, cardiac surgeons have entered a new era marked by results undreamed of only a decade ago.

Not only can the defects in the interatrial and ventricular septi be closed by direct suture and under direct vision, but even more complicated defects lend themselves to complete repair. For instance, in the congenital heart defects grouped as the tetralogy of Fallot, which require correction of the obstruction to blood flow to the lungs by direct surgery on the pulmonic valve, or infundibulum; closure of the ventricular septal defect; and occasionally reconstruction of the wall of the outflow tract with a prosthetic graft, the hemodynamics of the heart are essentially restored to normal. Other congenital defects that lend themselves to repair by open-heart surgery include A-V communis, pulmonic stenosis, aortic stenosis, and subaortic stenosis. Possibly transposition of the great vessels can also eventually be added to this list.

Similarly, some of the acquired cardiac defects that have heretofore provided insurmountable technical problems now can be approached surgically. These include ventricular aneurysms, aneurysms of the ascending aorta, and certain types of mitral insufficiency.

Undoubtedly as experience grows and as further refinements of the pump-oxygenator are developed, new important uses will be found for this machine. Already, however, many persons who would otherwise be doomed to lead the lives of cardiac cripples are offered the opportunity for complete health because of the possibility of performing open-heart surgery on them with the aid of the mechanical pump-oxygenator.

The American Trudeau Society has amended its bylaws to broaden its base of membership to admit individuals who may not have an M.D. degree and whose training may be in scientific fields not strictly related to medicine. This action is in line with the expanding program of the Society, which now includes all respiratory diseases.

Whereas the requirement for active membership was formerly "a medical degree," with a limited number of Ph.D.'s admitted, the section of the bylaws on membership (Article III) has been amended to read, "Active members shall have an M.D., Ph.D., or equivalent degree." At the discretion of the ATS Council, the requirement of a doctoral degree may be waived for a limited number of workers in scientific fields closely related to the activities of the Society.

The bylaws were amended at the annual business meeting of the Society in Chicago May 26, 1959.

Dr. Bloomer is assistant professor of surgery at Yale University and specializes in thoracic and cardiovascular surgery. He has assisted W. W. L. Glenn, M.D., in his development of Yale's program for open-heart surgery. Dr. Bloomer received his medical degree from Yale, and after interning at Stanford University in surgical service, he served in the U.S. Army for three years as a medical officer. He later returned to Yale to continue in the postgraduate surgical residency program. Dr. Bloomer's article was solicited by the Committee on Medical Public Relations of the American Trudeau Society.

GETTING CHRISTMAS SEAL PUBLICITY

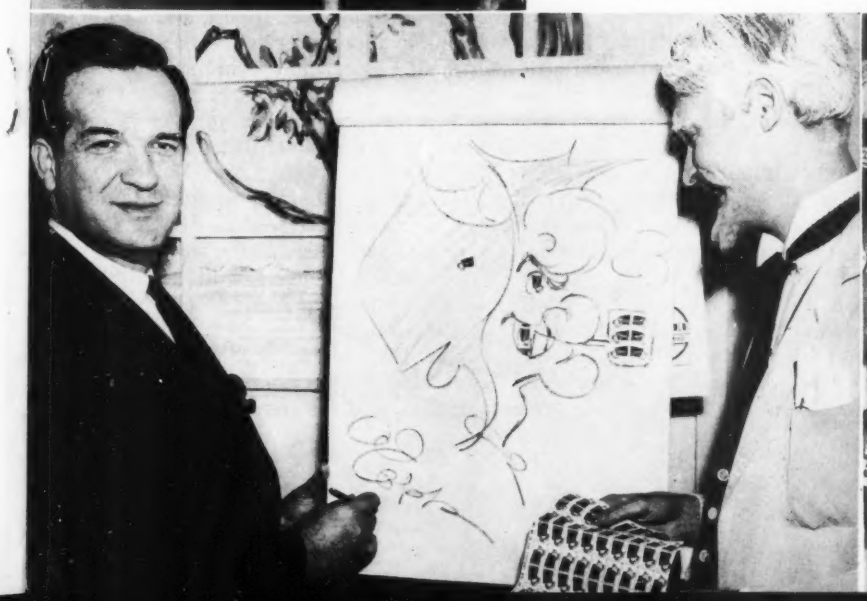
WHILE ingenuity and imagination are always assets in any phase of tuberculosis control, they are particularly valuable during the Christmas Seal Campaign. Here are four unusual publicity devices used by tuberculosis associations to spark the 1958 campaign.

Top: Weighing approximately 400 pounds, made of aluminum with red transparent panels, and lighted by fluorescent tubes, this giant double-barred cross is one of ten illuminated crosses provided by the Tuberculosis Institute of Chicago and Cook County for display on top of leading commercial buildings in Chicago. The companies occupying the buildings raise the signs at their own expense and store them when not in use. The Institute's sole responsibility is to replace burned-out lights and remind the companies each year when it is time for the crosses to be erected.

Left: The Maryland Tuberculosis Association awarded free educational film strips at the Maryland State Teachers Convention last year to teachers whose guesses came closest to the actual number of Christmas Seals stuffed in a large double-barred cross suspended from the ceiling. Later, station WJZ-TV repeated the contest on one of its morning programs and presented a $100 camera to the winner. (The correct answer, incidentally, was 147,300.)

Below, left: Cartoonist Al Capp opened the Christmas Seal-Christmas card contest for youngsters, sponsored by the District of Columbia Tuberculosis Association, which ran every weekday for six weeks on the "Grandpa's Place" show on station WTTG-TV. L'il Abner's creator showed boys and girls how Christmas Seals can be used in drawings by using them for the eye, the tooth, and the pipe on one of his Dogpatch characters. Weekly and grand prizes, donated by local merchants, were awarded both to the youngsters sending in the best cards and their parents.

Below, right: To celebrate its 50th anniversary last year, the Wisconsin Anti-Tuberculosis Association conducted "Operation Balloon Drop." Carrying the association's imprint and the message "Buy and Use Christmas Seals," 500 balloons were dropped by a C-119 donated by the 2473rd Air Reserve Training Center over Wisconsin Avenue, in Milwaukee, during the height of the Christmas shopping rush. A return post card was attached to each balloon, carrying a Christmas Seal message and offering a valuable collection of past Christmas Seals to the first 50 persons who returned the cards and a year's subscription to the association's publication *The Crusader* to the others. In all, 130 cards were received.



TB AMONG HUNGARIAN REFUGEES

By John J. Brennan, M.D.

Senior Surgeon
Division of Foreign Quarantine
U.S. Public Health Service

A PHS medical officer examines refugees before they depart from Europe.

THE story of the Hungarian refugee program begins on November 9, 1956, when the U.S. Public Health Service in Europe was advised by the Consul General in Vienna that the Service should expect to process about 5,000 Hungarian refugees who were to be admitted to the United States by President Eisenhower's order under the Refugee Relief Act. Then, on December 1, 1956, President Eisenhower announced that the United States would admit 21,500—more than four times the number originally planned.

Most of this group were admitted as "parolees," having no permanent residence status in the United States. Eventually, a total of 36,580 Hungarian refugees were admitted. This "crash" migration, with its necessary medical processing, created a new challenge for the PHS. Each case had to have a physical examination, a chest X-ray, a serology, and a smallpox vaccination. The case load of the PHS in Vienna and Salzburg, where the cases were processed, increased from a regular combined quota for these two cities of approximately 250 a month to a peak load of 1,500 daily.

There were 1,641 cases of suspected tuberculosis found among the refugees. The examinations and certifications of disease were done abroad under unusual circumstances, using only 70 mm. films for chest X-rays. Decisions were made on the basis of small film and without the usual waiting period: The appearance of the lungs on X-rays made at three-month intervals must remain entirely unchanged, without progression or regression. All lesions must appear well fibrosed or calcified, and there shall be no cavities. Bacteriological examinations for tubercle bacilli must be consistently negative with visa applicants, and these requirements shall be met for a period of at least one year before the applicant is approved for a visa. As this was an emergency program, these regulations were waived.

After medical processing, the refugees were transported to the United States by plane and ship. The task of making emergency arrangements for this large group was accomplished by the combined efforts of the PHS, the U.S. Consular Service, the Inter-Governmental Committee for European Migration, the U.S. Immigration and Naturalization Service, the U.S. Armed Forces, and voluntary agencies.

A Reception Center for refugees arriving in the United States was set up at Camp Kilmer, N.J. Here the PHS and the other governmental and lay agencies referred to above rescreened each case, and arrangements were made for housing, work, rehabilitation, education, medical care, and hospitalization.

The PHS set up a Medical Board consisting of specialists from the Army, the PHS, and the community. All sus-

pect cases were re-examined, large films were taken, and sputum tests were run. Four hundred and sixty-five, or 28 per cent, of the original 1,641 were diagnosed as having tuberculosis requiring hospitalization. The cost of hospitalization was assumed by the Immigration and Naturalization Service. Whenever possible, an attempt was made to place the refugee in a sanatorium near family or relatives. Patients were sent to 25 states. The names of the refugees who had inactive tuberculosis were sent to the appropriate state department of health for follow-up.

Current information is available on 412 of the 465 active tuberculosis cases. These 412 have spent a total of 66,847 patient days in hospital, ranging from 0 to 733 days per patient and averaging 162.5 days. Positive bacteriology was found in 112 cases (27 per cent); 37 cases have undergone surgery (9 per cent). At present, only 10 (2 per cent) are still hospitalized; 180 (44 per cent) have been discharged from the hospital on chemotherapy, and 222 (54 per cent) have been discharged without chemotherapy recommendations. Three (0.7 per cent) of the 412 have died; none of the deaths were due to tuberculosis.

The PHS has discharged from its follow-up 94 (20 per cent) of the total 465 cases as having arrested disease after a year or more of outpatient observation and continues to follow the remaining 371.

1960 PHS BUDGET

The United States Congress has appropriated $6,452,000 for the fiscal year 1960 for the Tuberculosis Program of the U. S. Public Health Service, Department of Health, Education, and Welfare, and $50,087,000 for the Division of Indian Health.

The $6,452,000 voted for the Tuberculosis Program is an increase of $66,000 over the 1959 budget—mainly due to expanded staff and administration costs. The whole increase comes under the direct operations of the Tuberculosis Program. The $2,452,000 will be used for cooperative applied research, technical assistance to states, and administration.

For the second year in a row, the President's Budget has requested that the grants to states be reduced to $3,000,000, but each year Congress has increased this request to $4,000,000. The National Tuberculosis Association requested that this budget item be returned to the 1958 figure of $4,500,000. The grants to states are for the direct expenses of prevention and case-finding projects, to be matched by equal amounts of state and local funds.

In his statement before the Senate's subcommittee of the Committee on Appropriations, Edward T. Blomquist, M.D., chief of the Tuberculosis Program, said, "The new drugs have made possible the successful treatment of many patients with relatively short periods of hospitalization. The average length of hospitalization is still about eight months, and continued treatment at home is usually necessary for more than a year after that. The problems of medical care, provision of drugs, the laboratory and X-ray work so necessary to determine a patient's progress, which were once chiefly the responsibility of hospitals, now fall more heavily on health departments."

In the research field, the PHS will continue its studies into the effectiveness of isoniazid as a preventive, or prophylactic, against tuberculosis.

NTA Statement

The NTA did not agree with the Bureau of the Budget's request for a decrease in funds. In presenting the NTA's statement before the subcommittee, Joseph B. Stocklen, M.D., who has represented the NTA Board of Directors before Congressional committees for the past several years, accompanied by Robert L. Yeager, M.D., emphasized that the improvement in the tuberculosis picture has been significantly affected by past appropriations to the PHS's Tuberculosis Program. He also said, in substantiating Dr. Blomquist's statement, "We should like to point out that present-day methods of tuberculosis treatment have reduced the length of hospitalization of the patient but increased the outpatient clinic follow-up of tuberculosis cases, thus increasing the cost of control and prevention programs for state and communities. In past years a large portion of the funds expended by the states for this purpose have been made available by the tuberculosis grants to states."

Indian Health Program

The NTA requested $48,000,000 for the Division of Indian Health, PHS; the Administration requested $43,500,000. The Administration's request meant that this program would have been operating for the third consecutive year at essentially the same level.

In his appeal for increased funds for Indian Health Activities, Dr. Stocklen reminded the Senators of the decrease in deaths and newly reported cases of tuberculosis among Indians. "Our association is delighted to learn of the great strides made in the construction of the much-needed hospital and clinic facilities for the American Indian. With each new or expanded health facility comes an additional drain on the program budget for staff, services, and maintenance; we do not see how these increases in costs can be met if the budget remains constant."

Congress saw fit to appropriate $45,500,000 for the Division of Indian Health Program Activities, which was $2 million more than the Administration's request and $2.5 million less than the NTA request.

Congress surpassed NTA's request for Construction of Indian Health Facilities by $1.5 million. The total appropriation for construction is $4,587,000, which will be used to provide quarters for personnel.

NTA Board Committees

. . . their purpose and functions

Nominating Committee

The Nominating Committee is one of the three committees required by the Bylaws of the National Tuberculosis Association. (The others are the Executive Committee and the Committee on Qualifications and Contract.) The composition and duties of the Nominating Committee are specified in the Bylaws as follows:

1. The President, with approval of either the Board of Directors or the Executive Committee, shall appoint annually a Nominating Committee of five members of the Association, none of whom shall be directors whose terms are expiring, three of whom shall not be members of the Executive Committee, who shall present at the Annual Meeting of the Association the nomination for Clerk and the names of persons for election to the Board of Directors. Other nominations for the Board may be made from the floor at the Annual Meeting.
2. The Nominating Committee shall also present to the Board of Directors at the first meeting of the Board of Directors after the Annual Meeting of the members the names of persons for election as President-Elect, the Vice-Presidents, the Secretary, the Treasurer, and the members of the Executive Committee. Other nominations may be made from the floor.

The names of all persons nominated for membership on the Board of Directors, both representative directors and directors at large, are presented to the membership of the NTA by the Nominating Committee. In past years, because of the requirement that the membership meeting be held in Maine, the members have empowered the clerk of the NTA to vote as their proxy for the list of new Board members. Recently, the legislature of the State of Maine has passed a special law which enables the NTA to hold its Annual Meetings of the corporation in other parts of the country, though continuing to be incorporated in that state. Hence, for the first time, in 1960 the meeting of the membership and the actual voting for new Board members will take place at the Annual Meeting. The Bylaws will be so amended at the next meeting of the Board and the time and place of the meeting set.

In nominating representative directors, the committee simply places before the membership the names of those persons submitted to the committee by the constituent associations whom they are to represent. In the case of directors at large, the Nominating Committee's role is one of selection. Suggestions come to the committee from members of the Board, from constituent and local associations, and from NTA staff. In addition to the personal qualifications of the individuals suggested, consideration must be given to such factors as geographical distribution of Board membership, the balance of medical and nonmedical membership, and the particular skills, talents, or backgrounds needed on the Board at any given time. This task of selection is frequently a very difficult one for the committee.

Many of the same problems confront the committee in the equally difficult task of selecting a slate of candidates for NTA offices.

The committee usually meets twice a year, just prior to each meeting of the Board of Directors. In addition, each member of the committee does a great deal of homework studying the materials prepared by staff—a large folder giving all possible data on each Board member and all persons suggested for membership, charts and tables showing geographic distribution of Board membership, occupations and professions represented, committee service of Board members, and much else that is pertinent.

The members of the Nominating Committee for 1959-60 are Mrs. Morrell DeReign, Caruthersville, Mo., chairman; The Reverend J. A. Bowers, Greenwood, S. C.; David A. Cooper, M.D., Philadelphia, Pa.; Orin J. Farness, M.D., Tucson, Ariz.; and William D. Province, M.D., Franklin, Ind.

BULLETIN BRIEFS

New name for ART. The name of the journal of the American Trudeau Society has been changed from THE AMERICAN REVIEW OF TUBERCULOSIS AND PULMONARY DISEASES to THE AMERICAN REVIEW OF RESPIRATORY DISEASES, with the subtitle "Clinical and Laboratory Studies of Tuberculosis and Respiratory Diseases." The change, in line with the broadened interests of the ATS and the National Tuberculosis Association, was effective with the July, 1959, issue of the journal.

Lung function course. A postgraduate course in "The Measurement of Pulmonary Function in Health and Disease" will be given at the Boston City Hospital, Boston, March 21 to 25, 1960, under the auspices of the Medical Schools of Harvard University, Tufts University, and Boston University; the Harvard School of Public Health; the Massachusetts Tuberculosis and Health League; and the Massachusetts Trudeau Society. The course will be the 10th annual one on pulmonary function sponsored by the American Trudeau Society and the Boston groups. The tuition is $75.00. Applications may be obtained by writing Edward J. Welch, M.D., 1101 Beacon Street, Brookline 46, Mass. The deadline for applications is March 1.

SCIENTISTS AT WORK

An idea and three empty rooms eight years ago—today a modern research laboratory in which a new vaccine against tuberculosis has been developed and where other productive studies in immunology are under way.

The catalyst that brought about the transformation of the empty rooms was a medical research grant from the National Tuberculosis Association-American Trudeau Society, according to Stuart Willis, M.D., the chief investigator of the group in the Southern university town of Chapel Hill, N.C.

But before the grant came the idea, and it was Dr. Willis who had the idea even before he became superintendent and medical director of the **North Carolina Sanatorium System** and established a research division as part of the system.

The grant, first made in 1951, was to enable Dr. Willis to put to the test his theory that a human strain of the tubercle bacillus might make a more satisfactory vaccine for the protection of people against tuberculosis than a bovine strain, such as BCG. There was a certain strain he wanted to try—one that, in fact, he had been nursing along by inoculating and reinoculating it in animals for 10 years without transfer to culture. The strain, known as R_1, had a distinguished history. It had been isolated in 1891 at the Trudeau Sanatorium in Saranac Lake, N. Y., by Edward L. Trudeau, M.D., who had recognized its immunologic qualities at the time, now known as R_1R_V.

Soon after the NTA-ATS grant was made, Dr. Willis secured the services of a promising young bacteriologist, H. M. Vandiviere, who has played a leading part in the development of the study, and is now director of research.

Experiments with animals and limited trials with humans have justified Dr. Willis's original faith and his associates' patience over years of tedious work. They have found that R_1R_V fulfills the principal requirements of a vaccine, which are:

- A vaccine must have sufficient strength to arouse the protective forces of the body to fight the foreign invader, but must not have enough virulence to cause progressive disease.
- In the case of a vaccine made with living organisms, as both R_1R_V and BCG are, the organisms must be kept alive while the vaccine is being made and the organisms must be able to multiply after inoculation.
- The vaccine must be capable of standardization—that is, the ratio of living cells to dying cells in a given dose must be constant, or practically constant, from the time of production to the time of use.

Preservation is always a problem with a live vaccine. The problem has been largely overcome with BCG by lyophilization, or freeze drying the vaccine as soon as it is produced. Theoretically, the organisms alive at the time of freezing will come back to life when the dose is liquefied at the time of use. Because some variations may occur, it is customary to test the vaccine before use as well as before freeze drying. A new snow-freeze spray technique of lyophilizing their vaccine is being worked on by the North Carolina investigators and appears to give a more stable product than has been obtainable by other methods.

The three empty rooms of eight years ago have become a research laboratory occupying an entire wing in the Gravely Sanatorium, located in Chapel Hill. In addition, there is a "duplex" on the grounds, separate from the main building, where the vaccine is actually made. The NTA-ATS grants have been continued on an annual basis, and special grants have been made by the North Carolina Tuberculosis Association, the Virginia Tuberculosis Association, the Ingham County (Mich.) Tuberculosis and Health Society, the North Dakota Tuberculosis Association, and other groups.

Inevitably, the original work with the vaccine has sparked other studies, which include one that may lead to the identification of the specific protein in tuberculin responsible for eliciting the reaction to the tuberculin test and may make possible the production of a further purified PPD.

The principal interest of the group is centered on the vaccine, however. No plans are being made for a large-scale test among people at present, for the time does not seem propitious in this country, but the technique has been mastered and a superior vaccine could be produced. When the freeze-drying technique has been sufficiently refined for dependable constancy, the vaccine can be shipped anywhere in the world to aid in the eradication of tuberculosis.—A.S.F.

Viability standardization of vaccines is done here in the vaccine room.

Mrs. Gretchen Claus, former executive director of the Ottawa County (Ohio) Tuberculosis and Health Association, and **Henry Stevens,** business manager of the National Tuberculosis Association, were married on June 10.

Joseph B. Stocklen, M.D., a member of the Board of Directors of the National Tuberculosis Association and former tuberculosis controller of Cuyahoga County, Ohio, has been appointed to the new position of chronic disease coordinator for Cuyahoga County—the country's first coordinator of treatment of chronic diseases and diseases of the aging.

Frederick S. Kelley, who had been executive director of the Greater Hartford (Conn.) Tuberculosis and Public Health Society for the past nine years, resigned to join the staff of the American Heart Association. **Oliver W. Brooks,** program supervisor, has been named acting executive director.

Miss Margarette B. Helmle, director of Rehabilitation Service for the Brooklyn Tuberculosis and Health Association for the past 15 years, retired in July.

John A. Kaichen, formerly city editor of the *Daily Tribune,* Royal Oak, Mich., has been appointed to the public relations staff of the Tuberculosis and Health Society of Wayne County, Detroit.

Miss Mildred A. Wheeler, who joined the Missouri Tuberculosis Association as a field representative in 1924 and has been administrative assistant for the past 14 years, has retired. She has been succeeded by **Miss Marie Nolan,** a member of the office staff.

Keith C. Sutherland, former newspaper editor and news bureau director, has been appointed education and public relations associate for the Iowa Tuberculosis and Health Association.

E. Wesley Du Chemin, formerly a research technologist at the Veterans Administration Hospital in Denver, has been appointed a field consultant for the Colorado Tuberculosis Association.

Miss Ruth Beckman, formerly health educator for the Bridgeport Area (Conn.) Tuberculosis Association, has been named executive secretary of the association.

James F. Byrne has been appointed executive secretary of the Mecklenburg County (Charlotte, N.C.) Tuberculosis and Health Association, succeeding **Edwin Moline.**

Miss Dee Chastang has been appointed executive secretary of the Hinds County (Miss.) Tuberculosis Association, replacing **Mrs. Henry Eason.**

Miss Ruth M. Beckman, who has been health educator for the Bridgeport Area (Conn.) Tuberculosis Association for the past two years, has been appointed executive secretary. She succeeds **Miss Phyllis I. Baldwin.**

This year marks the hundredth anniversary of the birth of **Hermann M. Biggs, M.D.** (1859-1923), pioneer in tuberculosis control and one of the founders of the National Tuberculosis Association. Dr. Biggs was the second president of the NTA (1905-07), and when he later served as commissioner of health for New York State, was the first official to require compulsory reporting of tuberculosis by physicians.

Samuel Cohen, M.D., formerly director of medicine at B. S. Pollak Hospital for Chest Diseases, Jersey City, and a member of the Committee on Medical Public Relations for the American Trudeau Society, has been appointed professor of medicine at the Seton Hall College of Medicine and Dentistry, Jersey City.

Mrs. Mae H. Carter has retired as executive secretary of the Ocean County (N.J.) Tuberculosis and Health Association. She had served with the association since 1930 as a field nurse and became executive in 1952. Mrs. Carter has been succeeded by **Mrs. Elizabeth Grant,** who has been on the nursing staff of the Ocean County Health Department.

Miss Mary French, field representative for the California Tuberculosis and Health Association, has been appointed personnel coordinator.

Mrs. Aileen Checket has been appointed executive secretary of the Davies County (Ky.) Tuberculosis Association, succeeding **Mrs. Ralph W. Head.**

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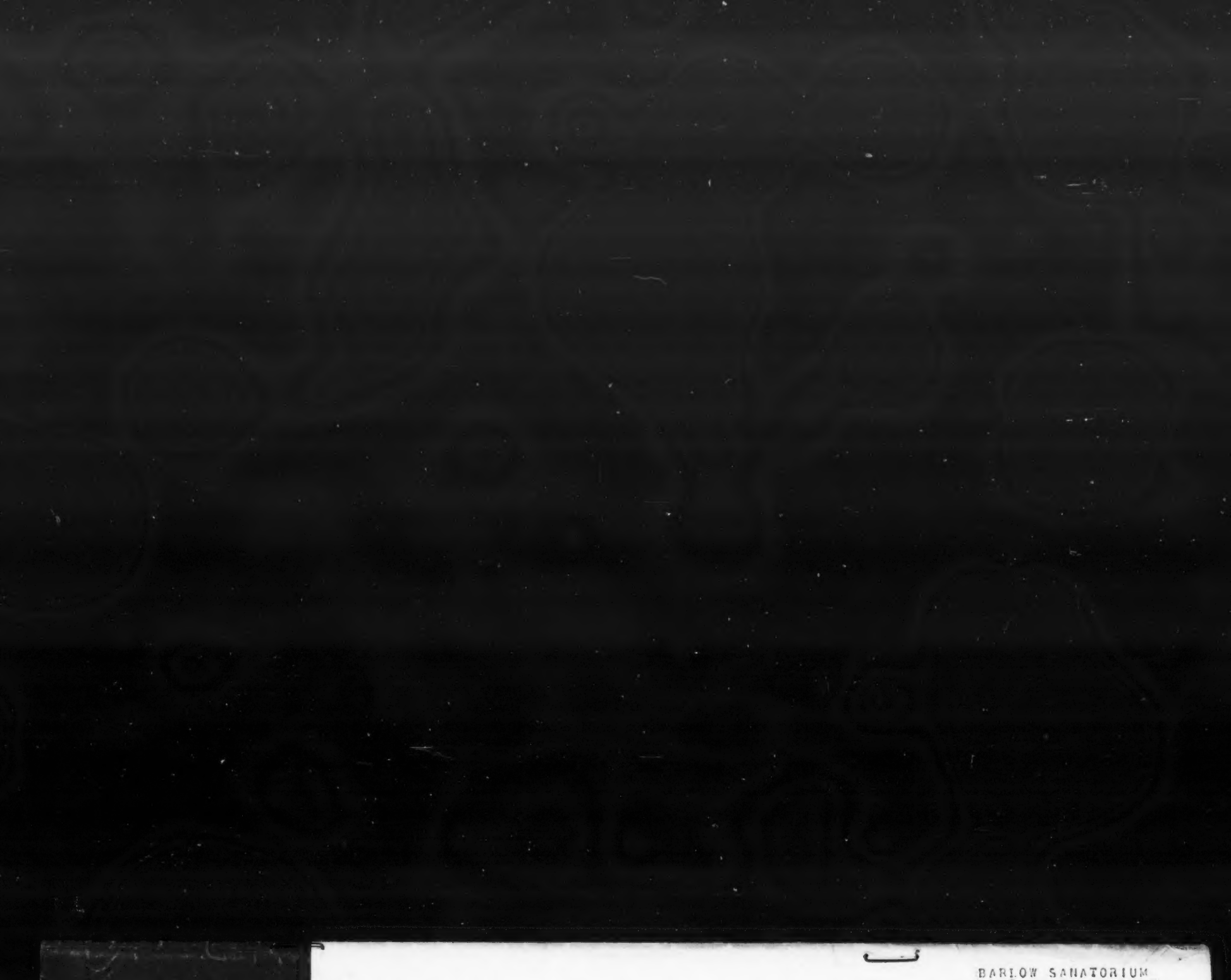
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